IN THE CLAIMS:

1. (Currently Amended) A system for mounting vehicle wheels, each having an axial pilot hole and a plurality of radially spaced lug holes disposed in one of a plurality of symmetric and axially centered configurations, about a spindle shaft of a vehicle wheel balancer, comprising:

a single mounting flange assembly configured for placement on the spindle shaft, said single mounting flange assembly including a flange plate, a coaxially mounted adjusting plate coupled for coaxial rotational movement relative to said flange plate about a central axis, and a plurality of mounting pins, each of said plurality of mounting pins including a guide pin adapted for engagement with said flange plate and said adjusting plate, and a contact tip adapted for engagement with the plurality of radially spaced lug holes;

wherein said single mounting flange assembly is configured to provide infinite radial adjustment of said contact tips about the spindle shaft between a minimum radial dimension and a maximum radial dimension to engage each of the plurality of radially spaced lug holes for a plurality of symmetric and axially centered vehicle wheel lug hole configurations, each lug hole configuration having a different number of lug holes; ~~and~~

~~at least one tapered centering cone having at least a first tapered surface increasing in diameter from a first end, said tapered centering cone configured for placement on the spindle shaft and having an identifying indicia~~

wherein said flange plate is configure to receive each of said plurality of guide pins in an associated slot in a first plurality of slots having a first common configuration selected from a set of configurations including radial, arcuate, and skewed; and

wherein said adjusting plate is configured to concurrently receive each of said guide pins in an associated slot in a second plurality of slots having a second common figuration which differs from said first common configuration, and which is selected from said set of configurations.

2. (Previously Presented) A system for mounting vehicle wheels, each having an axial pilot hole and a plurality of radially spaced lug holes disposed in one of a plurality of symmetric and axially centered configurations, about a spindle shaft of a vehicle wheel balancer, comprising:

a single mounting flange assembly configured for placement on the spindle shaft, said single mounting flange assembly including a flange plate and a plurality of mounting pins, each of said plurality of mounting pins including a guide pin adapted for engagement with said flange plate and a contact tip adapted for engagement with the plurality of radially spaced lug holes;

wherein said single mounting flange assembly is configured to provide infinite radial adjustment of said contact tips about the spindle shaft between a minimum radial dimension and a maximum radial dimension to engage the plurality of radially spaced lug holes for a plurality of symmetric and axially centered configurations each having a different number of lug holes; and

at least one double-tapered centering cone having a first tapered surface increasing in diameter from a first end, and a second tapered surface increasing in diameter from a second end axially opposite said first end, said double-tapered centering cone configured for placement on the spindle shaft and having an identifying indicia.

3. (Currently Amended) The system of Claim 1 for mounting a vehicle wheel wherein said ~~single mounting flange assembly further includes an adjusting plate rotationally coupled to said flange plate, said~~ plurality of slots in each of said adjusting plate and said flange plate cooperatively defining a plurality of radially spaced unobstructed passages configured to receive said mounting pin guide pins; and

wherein rotational movement of said adjusting plate relative to said flange plate alters a radial position of each of said unobstructed passages.

4 - 8. (Cancelled)

9. (Previously Presented) The system of Claim 2 wherein said at least one centering cone further includes:

a central hole in said centering cone for axially guiding said centering cone on the spindle shaft;

a first tapered outer surface having a first minimum diameter adjacent a first end of said centering cone; and

a second tapered outer surface having a second minimum diameter adjacent a second end of said centering cone, opposite said first end.

10 - 19. (Cancelled)

20. (Currently Amended) A single adjustable mounting flange system for mounting a variety of vehicle wheels, each having a different lug pattern, on the spindle shaft of a balancing machine, comprising:

a flange plate having a central bore extending from a front face to a rear face;

an adjusting plate disposed adjacent said rear face and coupled to said flange plate for coaxial rotational movement relative to said flange plate;

a plurality of slots having a first common configuration and first orientation passing through said flange plate;

a plurality of slots having a second common configuration and second orientation passing through said adjusting plate; and

wherein said plurality of slots in said flange plate and said plurality of slots in said adjusting plate cooperatively define a plurality of axially symmetric sets of unobstructed passages through said adjustable mounting flange, each of said axially symmetric sets including at least three unobstructed passages and corresponding to each lug hole in a different wheel lug pattern; and

wherein each of said unobstructed passages in each of said axially symmetric sets is disposed at a common radial distance from an axis of said central bore, said common radial distance associated with a rotational position of said adjusting ~~plate; and~~

~~at least one tapered centering cone having at least a first tapered surface increasing in diameter from a first end, said tapered centering cone configured for placement on the spindle shaft of the balancing machine to support a vehicle wheel thereon in conjunction with said flange and adjusting plates~~ plate.

21. (Currently Amended) The adjustable mounting flange system of Claim 20 wherein said plurality of slots passing through said flange plate include at least one set of circumferentially equidistant spaced slots, and wherein said first ~~said slots in each of said sets having a~~ common configuration is selected from a set of configurations including radial, arcuate, or skewed; and

wherein said plurality of slots passing through said adjusting plate include at least one set of circumferentially equidistant spaced slots, and wherein said second ~~said slots~~

~~in each of said sets having a~~ common configuration is selected from a set of configurations including radial, arcuate, or skewed and which is different from said first common configuration of said slots in said flange plate.

22. (Previously Presented) The adjustable mounting flange system of Claim 20 wherein each of said unobstructed passages is configured to receive a mounting pin.

23. (Previously Presented) The adjustable mounting flange system of Claim 20 wherein a range of rotational movement of said adjusting plate about said central axis corresponds with a range of radial movement of each of said unobstructed passages in said set of unobstructed passages between an inner radial position and an outer radial position.

24. (Previously Presented) The adjustable mounting flange system of Claim 20 wherein each of said sets of slots passing through said flange plate are disposed in annular patterns corresponding to different annular patterns of vehicle wheel lug holes; and

wherein each of said sets of slots passing through said adjusting plate are disposed in annular patterns corresponding to said different annular patterns of vehicle wheel lug holes.

25. (Previously Presented) The adjustable mounting flange system of Claim 24 wherein each slot in a subset includes identifying indicia associated with said respective subset.

26. (Currently Amended) A method for securing a vehicle wheel having a plurality of lug holes on the spindle of a balancing machine with the single adjustable mounting flange assembly of Claim 20, comprising the steps of:

identifying a lug hole pattern on the vehicle wheel;

rotationally aligning said adjusting plate with said flange plate such that at least one of said axially symmetric sets of unobstructed passages through said adjustable mounting flange corresponds to each lug hole present in said identified lug hole pattern;

installing a plurality of mounting pins in each unobstructed passage in said aligned set of unobstructed passages;

disposing, on said balancer spindle, a tapered centering cone having at least a first tapered surface sized for concentric seating within said vehicle wheel pilot hole;

positioning the pilot hole of the vehicle wheel about said tapered centering cone on the balancer spindle;

mounting said adjustable mounting flange on the balancer spindle;

aligning each of said plurality of mounting pins with a lug hole on the vehicle wheel; and

urging said mounting flange towards said vehicle wheel and tapered centering cone, engaging each of said plurality of mounting pins with said lug holes, whereby said vehicle wheel is seated on said tapered centering cone and centrally secured about said balancer spindle.

27. (Original) The method of Claim 26 for securing a vehicle wheel wherein the step of aligning further includes the step of rotating said adjusting plate relative to said flange plate, whereby a radial position of each of said mounting pins is altered.

28. (Original) The method of Claim 27 for securing a vehicle wheel wherein each of said mounting pins has a common radial position; and wherein said radial position of each of said mounting pins is altered simultaneously and equally.

29. – 60. (Cancelled)

61. (Currently Amended) The system of Claim 1 wherein said ~~single mounting flange assembly further includes:~~

~~an adjusting plate coupled adjacent a rear face of said flange plate for coaxial rotational movement relative to said flange plate about a central axis;~~

~~a first plurality of slots passing through said flange plate;~~

~~a second plurality of slots passing through said adjusting plate; and~~

~~wherein said~~ first and second pluralities of slots cooperatively define at least one set of unobstructed passages through said flange plate and adjusting plate, each set of unobstructed passages corresponding to a symmetric and axially centered vehicle wheel lug hole configuration; and

wherein each of said unobstructed passages in a set of unobstructed passages is configured to receive a guide pin and is disposed at a common radial distance from an axis, said common radial distance associated with a rotational position of said adjusting plate.

62. (Cancelled)

63. (Previously Presented) The system of Claim 61 wherein a range of rotational movement of said adjusting plate about said central axis corresponds with a range of radial movement of each of said unobstructed passages in said set of unobstructed passages between an inner radial position and an outer radial position.

64. – 67. (Cancelled)

68. (Currently Amended) The system of Claim 1 wherein said ~~single mounting flange assembly further includes:~~

~~an adjusting plate coupled adjacent a rear face of said flange plate for coaxial rotational movement relative to said flange plate;~~

~~a~~ first plurality of ~~radial~~ slots passing through said flange plate have a radial configuration;

[[a]] said second plurality of ~~arcuate~~ slots passing through said adjusting plate have an arcuate configuration; [[and]]

wherein said first and second pluralities of slots cooperatively define at least one set of unobstructed passages through said flange plate and adjusting plate, each set corresponding to a symmetric and axially centered vehicle wheel lug hole configuration; and

wherein each of said unobstructed passages in a set of unobstructed passages is configured to receive a guide pin and is disposed at a common radial distance from an axis, said common radial distance associated with a rotational position of said adjusting plate.

69. (Previously Presented) The system of Claim 61 wherein said first plurality of slots passing through said flange plate includes a plurality of sets of circumferentially equidistant spaced slots; and

wherein said second plurality of slots passing through said adjusting plate include a plurality of sets of circumferentially equidistant spaced slots, each set of slots passing through said adjusting plate associated with a set of slots passing through said flange plate.

70. (Currently Amended) The adjustable mounting flange assembly of Claim 20 wherein said plurality of slots passing through said flange plate include at least one set of circumferentially equidistant ~~spaced radial~~ slots in a radial configuration; and

wherein said plurality of slots passing through said adjusting plate include at least one set of circumferentially equidistant ~~spaced arcuate~~ slots in an arcuate configuration.